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spider presents an intermediate type between eggs with general superficial segmentation of the Crustacea, such as Peneus, and the eggs with regular discoidal segmentation, such as those of certain fishes, that is to say, it has a blastulation intermediate between periblastulation and discoblastulation. It greatly approaches the eggs of Chelifer (Metschnikoff), Tetranychus (Claparède), and of insects (Bobretsky). Thus is plainly manifested from the outset the affinity of the Araneina with the groups of Arachnida and with the insects.——The Bezoar or guliga stones are concretions or calculi formed in the " stomach and intestines " of the red monkey, a species of Semnopithecus abundant in the interior districts of Borneo. Mr. A. H. Everett says (in the *Ann. and Mag. Nat. Hist.*, March) that "accounts vary very much among the natives as to the exact position in which the guligas are found, some saying they may occur in any part of the body, others that they occur only in the stomach and intestines, whilst I have heard others declare that they have taken them from the head and even the hand." (Everett does not state what would seem more probable, that they may be renal calculi.) The monkeys drink the water of certain springs, which must be saline mineral springs, or the creatures are cut off from the use of fresh water. Everett adds that " the widespread idea of the medicinal virtue of these concretions would lead us to suppose that there is some foundation for their reputation."——The *Cervus maral*, of Siberia, has recently been domesticated by Cossacks in the neighborhood of Kiakhta, in Western Siberia, where there are herds of seventy head. The horns of the wild deer, when filled with blood and not ossified, are much prized by the Chinese, who buy them at the Siberian border; but the horns of those which have been domesticated, lose a good many of their original qualities. ——In a recently-discovered stalactite cave at Kinchberg, near Kremsmünster (Austria), a jaw-bone of a man with well preserved teeth was found among numerous remains of *Ursus spelæus.*

ENTOMOLOGY.[1]

THE PERIODICAL CICADA, *alias*, " SEVENTEEN-YEAR LOCUST."—The present year will be marked by a quite extended appearance of this interesting insect, both a seventeen and a thirteen year brood simultaneously appearing. The readers of the NATURALIST are doubtless familiar with the habits and natural history of *Cicada septemdecim* Linn., and those of the thirteen-year race (*C. tredecim* Riley) which agree with it in every respect except in the time required for full development. We will, therefore, simply quote here, with brief comments, what was said in 1868, in the writer's First Report on the Insects of Missouri, regarding the two broods that are to appear the present summer and that will be rendering the woods vocal with their rattling song, in the more southern parts of the country, by the time the present number of the NATURALIST is out.

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[1] This department is edited by PROF. C. V. RILEY, Washington, D. C., to whom communications, books for notice, etc., should be sent.

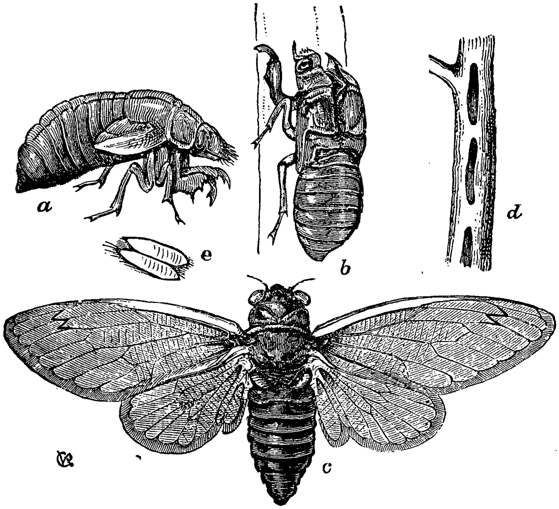

FIG. 1.—*Cicada septemdecim; a,* pupa; *b,* pupa shell; *c,* perfect insect ♂; *d,* twig with egg-punctures, nat. size; *e,* eggs, enlarged. (After Riley.)

BROOD XVII—*Septemdecim*—1864, 1881.

In 1881, and at intervals of seventeen years thereafter, they will, in all probability, appear in Marquette and Green Lake counties, in Wisconsin, and may also appear in the western part of North Carolina, and about Wheeling, Virginia; in Northeast Ohio, and a few in Lancaster county, Pa., and Westchester county, New York.

There is abundant evidence that they appeared in the counties named in Wisconsin in 1864, and fair evidence that they appeared that year in Summit county, Northeast Ohio, while straggling specimens were found in the same year, by Mr. S. S. Rathvon, in Lancaster county, Pa., and by Mr. James Angus, in Westchester county, N. Y. Dr. Fitch also records their appearance in 1847, or seventeen years previously, in the western part of North Carolina, and Dr. Smith, in Wheeling, Virginia, in 1830, '47, and '64. The distance between the localities given is very great, and it is doubtful whether all these records belong to one and the same brood.

BROOD XVIII—*Tredecim*—1868, 1881.

In the year 1881, and at intervals of thirteen years thereafter, they will, in all probability, appear in Southern Illinois, throughout Missouri, with the exception of the north-western corner, in Louisiana, Arkansas, Indian Territory, Kentucky, Tennessee, Mississippi, Alabama, Georgia and North and South Carolinas.

Though, as already stated, I published the first account ever given of the existence of a thirteen-year brood, yet, besides the others mentioned in this chronology, this particular brood has been traced since, as having occurred in the years 1816, '29, '42, '55, and '68; and Mr. L. W. Lyon, at the July (1868) meeting of the Alton (Ills.) Horticultural Society, even mentioned its appearance in 1803.

In Missouri it occurs more or less throughout the whole State with the exception of the north-west corner that is bounded on the east by Grand river, and on the south by the Missouri river.[1] The south-east part of the State, where Dr. Smith has recorded it since 1829, is most thickly occupied. I enumerate those counties in which there is undoubted evidence of their appearance during the present year (1868), viz: Audrain, Bollinger, Benton,Clarke, Chariton, Callaway, Cooper, Cole, Franklin, Gasconade, Iron, Jefferson, Knox, Lewis, Marion, Macon, Morgan, Moniteau, Pike, Phelps, Pulaski, Polk, Pettis, Schuyler, St. Charles, St. Louis, St. Francois, St. Clair, Warren and Washington.

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[1] As Mr. Wm. Raucher, of Oregon, Holt county, saw a few individuals in the north-east part of Buchanan county in 1855, it may occur in small numbers in districts even north of the Missouri river.

It not improbably overlaps some of the territory occupied by the *septemdecim* Brood XIV [a brood which appeared last in 1879], but I do not think it extends into Kansas.

In Illinois it occurs more or less throughout the whole southern half of the State, but more especially occupies the counties from the south part of Adams county along the Mississippi to the Ohio, up the Ohio and Wabash rivers to Edgar county, and then across the center of the State, leaving some of the central counties in South Illinois unoccupied. To be more explicit, I enumerate all the counties in which it undoubtedly occurred during the present year (1868): Adams (south part, back of Quincy), Bond, Clinton (north-west corner, adjacent to Madison), Champaign, Coles, Crawford, Cumberland, Clay, Clark, Edwards, Edgar[1] (especially in the eastern part), Franklin, Gallatin, Hardin, Hamilton, Johnson, Jasper, Jersey, Jefferson, Lawrence, McLean (east end), Macon, Madison, Marion, Massac, Monroe, Pike, Perry, Piatt, Pope, Richland, Randolph, Sangamon, Saline, St. Clair, Union (north east corner), Washington, Wayne, Wabash, Williamson and White. There were none the present year, either at Decatur, in Macon county, or at Pana in Christian county; nor were there any at Bloomington or Normal, in McLean; nor in Dewitt county, which lies south of McLean; nor in Spring Creek, Iroquois county, which is northeast of Champaign.

In Kentucky, according to Dr. Smith, it occurred in the north-west corner of the State, about Paducah and adjacent counties south, in 1829, '42 and '55, and it occurred there in 1868.

In Arkansas, it occupied all the northern counties in 1842, '55 and '68.

In Alabama, it occupied Russell and adjacent counties on the east side of Black Warrior river, in 1842, '55 and '68.

In Tennessee, it occupied Davidson, Montgomery, Bedford, Williamson, Rutherford and adjacent counties, in 1842, '55 and '68.

In North Carolina, it appeared in Mecklenburg county, in 1829, '42, '55 and '68.

In South Carolina, the Chester district and all the adjoining country to the Georgia line, west, and to the North Carolina line, north, was occupied with it in 1816, '29, '42, '55 and '68.

In Georgia, it has occurred in Cherokee county since the year 1816.

In Louisiana, it appeared in Morehouse, Caddo, Clairborne, Washington and adjacent parishes, in 1855 and '68.

It also doubtless occurs in Mississippi and Indian Territory, though I am unable to specify any localities.

The last simultaneous appearance of these two broods was in 1860, and their appearance the present year will doubtless enable us to perfect our knowledge of the geographical range of either. Already we have received undoubted indications of their early ascension, as the pupæ have been reported either near or upon the surface of the ground in several of the localities indicated.

It will be observed that the thirteen-year brood (XVIII), is by far the most extended, and that it occurs very generally throughout the Southern States, both east and west of the Mississippi. We have gathered together since the last appearance of this brood in 1868, various facts which extend its range in Georgia and Tennessee, and which show that it also occurs in restricted parts of Indiana.

We shall be very glad to receive detailed information of the exact limits of either of these two broods, or indeed any record of the appearance of the insects the present year, and these records will be all the more valuable if the years of earlier appearances in the same localities can also be furnished. Information on these points should be sent to the editor of this department.

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[1] Edgar county also has the *septemdecim* Brood III.

A NEW SPECIES OF OAK COCCID MISTAKEN FOR A GALL.—An esteemed correspondent from Ohio (Dr. Jno. A. Warder) sends us what he supposed to be some kind of gall which he found at Iron mountain, Mo., on the twigs of *Quercus palustris*. They are pretty large, globular or almost globular, objects fastened to the twigs either singly or in clusters, as we are accustomed to see certain Cynipid galls. Their shining, yellowish surface is handsomely variegated with light-brown patches and with undulating or interrupted black lines. These objects have frequently been mistaken for galls, even by entomologists, but they are in reality the female scales of a Coccid, and are often infested by a Lepidopterous inquiline, *Euclemensia bassettella* (Clem.).

The particular species sent by our correspondent is tolerably common in the South and West on the twigs of different species of the black oak group. It is undescribed, and may be characterized as follows:

Kermes galliformis n. sp. Mature ♀ scale, average length 5 mm. Subspherical, usually somewhat broader than long, and often with a broad shallow constriction medio-dorsally. Attached by a broad, dark-brown cut or excavation, which is covered by a beak anteriorly and notched anally, the brown color extending to a point above the notch. Polished and smooth. Ground color pale yellowish, appearing under lens minutely and evenly speckled with brown; more or less suffused or mottled with gray or brown, the constriction, when present, generally dark. A series of about seven irregular rows of black punctations running across the scale, often connected by an irregular black line, and this again relieved by white or pale yellow. The three uppermost rows most distinct and constant.

The species is quite variable, the general shape and the form of cut point of attachment varying according to the position on a twig or as individuals are crowded; while the general color varies according as one color or the other predominates. Specimens which we have from New Mexico are uniformly without the constriction and with a pale-gray rather than a pale-yellow ground color. Prof. Comstock, Entomologist of the Department of Agriculture, is at work on this family of insects, and will, we hope, soon give us the natural history of many of the interesting forms, of the development of which nothing has so far been recorded.—*C. V. Riley.*

THE "WATER-WEEVIL" OF THE RICE PLANT.—In the February number we called attention to two of the worst insect enemies of the rice plant, first, the "grub," which injures the plant when the water is withdrawn from the soil, and which is the larva of *Chalepus trachyperus* Burm.; second, the "maggot," which has not yet been identified in the imago state, and which we suggested might possibly be the larva of *Spalacopsis suffusa* Newm. We have recently received the following interesting communication from Mr. John Screven, of Savannah, Ga., the specimens accompanying it being *Lissorhoptrus simplex* Say—a tolerably common species throughout the eastern part of the country, and found on various other water plants, so that it is probably not confined to rice as food. We have little doubt but that Mr. Screven is correct in his deduction that this snout-beetle is the parent of the "maggot," in which event the larva differs from the more typical larvæ of the Curculionids, in being quite elongate and not arched. Mr. S. writes as follows:

> I send you by express a number of "water-weevils" preserved in alcohol, together with some specimens of the young rice leaves on which they were found feeding. You will observe on the latter the method of the insect in feeding, and will find no difficulty in concluding that when in sufficient numbers, as is sometimes the fact, they may do much damage in the rice fields.
>
> I have observed with great interest and attention your allusion to this insect in the general notes from the AMERICAN NATURALIST, Feb., 1881. But it has suddenly occurred to me as possible that these "water-weevils" are the perfect insect of the "maggot" larva which I sent to you last summer. Allow me to suggest some reasons for this opinion.
>
> 1. Both the weevil and the maggot are water insects; both seek the same food, namely, the rice plant, differing however in this, that the one feeds on the leaf and the other on the root of the plant.
>
> 2. They differ in their periods of existence, the weevil appearing in April and May, the maggot in the summer months; but this may account merely for the time and circumstances necessary to incubation. Among the specimens sent you, I found several pairs in what appeared to be the act of copulation. These specimens were taken yesterday, April 29th, many of them *in the very spot where were found the maggots which I sent you last summer*. My first note of the latter was July 13th, and allowing one week for the appearance of the weevil after the fields are inundated for the stretch flow, the latter would be found, say, April 17th, making an interval of say ninety days between weevil and maggot, or between the beetle and the larva. This may appear an over-long period, but I assume that water is necessary to the generation and existence of this insect. Now, the "stretch water" does not last more than thirty days. At the expiration of this time the fields are drained and kept dry for at least thirty, very often forty days, and I presume that this fact, forbidding incubating during this period, it would not commence until the harvest flow is put on the fields. In 1880 this flow was applied say June 18th. The maggot was found July 13th, say thirty days after. I am quite ignorant of the periods of insect incubation, but it appears that if water is necessary to the generation and existence of this insect, the "maggot" larva, if from the water weevil, will hatch within thirty days after the harvest water is applied to the fields.
>
> 3. The water weevil and the maggot are found in the same habitat, and both disappear on the removal of the water in which they live. I may note here that the weevil is sluggish in its habits, is easily caught, and never "plays possum." It is seen in the greatest numbers in the early morning, feeding on the delicate leaves of the plant, and seeks, crawling down the stem, the cooler recesses under water as the sun grows warmer. Many, however, feed all day.

THE IMPREGNATED EGG OF PHYLLOXERA VASTATRIX.—It is interesting to note how, one by one, all the conclusions we have in former years arrived at, are verified and their accuracy established by European observers having, presumably, no knowledge of what we have recorded. In 1875 (see Transactions St. Louis Academy of Science, Nov. 5, 1875, p. 286) we remarked: "Having already had the young from the impregnated egg of *rileyi* hatch in about a fortnight after it was laid; having shown in previous writings that this species winters in the larva state, and not in the impregnated egg as does the European *quercus;* and remembering further, that *vastatrix* resembles *rileyi* in wintering as larva, it is safe to conclude that the impregnated egg of *vastatrix* will also hatch the same season that it is laid, and that we cannot apply to it the term 'winter egg,' which Balbiani applies to the impregnated egg of *quercus.* It is not unlikely that since a few of the winged females issue as late even as the latter part of October, some few also of the later produced impregnated eggs may pass the winter unhatched; if so, they may be considered exceptions to the rule. In the same way, a few of the more common eggs from the agamous ♀ may be exceptionally found on the roots in winter, though as a rule only the hibernal larva is found." In the April number of *La Vigne Americaine,* M. P. Graells records some interesting experiments in Spain which establish the fact beyond all peradventure that this impregnated egg is produced there from the months of June to November inclusive, and that the earlier laid eggs hatch and produce the stem-mother a few days after thay are laid. In this we have the true explanation of the larval hibernation of *Phylloxera vastatrix,* corresponding, in fact, with that of *P. rileyi.*

WORKS ON NORTH AMERICAN MICRO-LEPIDOPTERA. — Lord Walsingham's "North American Tortricidæ,"[1] which lays the foundation for a study of the Tortricids of the Pacific coast, and gives a scientific value to Walker's North American species, has already been reviewed by Professor Fernald in *The Entomologist's Monthly Magazine* for September, 1880 (the notice repeated in *Psyche* for October), and by Mr. Grote in *Papilio* for January, 1881. It will be unnecessary to repeat their comments, but as the book is indispensable to any one engaged in studying the parents of our "leaf-rollers," we take pleasure in calling further attention to it. The number of new species collected by Lord Walsingham in California and Oregon, is very large, and there are, besides, several new species described from Texas and a few from other parts of the country.

The illustration and description of Walker's species has been most ably and generously performed. That the coloring of some of the figures is faulty, or not in exact agreement with the descriptions in the text, is doubtless due to the poor condition of the specimens from which Walker described many of his species. It has been suggested that in cases where more than one species has been described by Walker under the same name, the last word has not been said; but it is evident to us that if either of these species had been previously named and described, Walker's name must sink as a synonym of that earlier name and should not be used for any other species. The application of this principle will doubtless serve to settle the synonymy of his "*Grapholitha discoferana*," among others.

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[1] *Illustration of Typical Specimens of Lepidoptera Heterocera in the collection of the British Museum.* Part IV.—North American Tortricidæ. By LORD WALSINGHAM. London, printed by order of the Trustees. 1879. 4to, pp. 84, with 17 colored lithographic plates.

The new genera are *Hendecastema* (which Professor Fernald has, in his review, shown to be synonymous with Clemens's prior genus *Amorbia)*, peculiar for the pectinate antennæ of the male, and for vein seven of the primaries being forked in the female but not in the male; *Synnoma*, also with pectinate male antennæ, remarkable for the great size of the abdomen of the female; *Hystrichophora*, differing from Phoxopteris in the longer palpi; and *Proteopteryx*, allied to Grapholitha but peculiar for an abrupt indentation of the posterior margin of the primaries upon vein five, and for the curving of veins three and four towards it. We may add in regard to *Proteopteryx* that *Hedya spoliana* Clem., and *Hedya cressoniana* Clem., have identically the same structure, and will doubtless take their place in that genus; but that this character is not confined to a single genus is evident from its occurrence in a new genus which we have, in a paper just published,[1] named *Proteoteras*, and which differs from *Proteopteryx* in the rough scaling of the primaries and the presence of a peculiar costal tuft on the male secondaries.

One of the more remarkable species described, *Carpocapsa latiferreana*, we have found, by breeding the male, to present characters for a distinct genus, allied to Zeller's Ecdytolopha, which we have named *Melissopus* (*l. c.* p. 322), the origin of vein two of secondaries being nearer the base of the wing than in Carpocapsa, and the male having a very deep pocket behind this vein and having the posterior tibiæ and tarsi greatly dilated.

A list of forty-eight species of Tortricids common to Europe and North America is given. This is a valuable contribution to the subject of the geographical distribution of the Lepidoptera, the strongest relationship being traced between Europe and the Pacific coast of North America. As Lord Walsingham deals more particularly with these western species, it may be that a similar treatment of our eastern Tortricid fauna will produce nearly corresponding results, although here the introduced species may play an important part. The species in this list which are of interest to the economic entomologist, are, *Retinia duplana* Hüb., *Retinia sylvestrana* Curt., and *Retinia pinivorana* Zell., all from Oregon; *Eudemis botrana* Schiff., which has been known in America as *Penthina vitivorana* Pack., *Phoxopteris comptana* Fröl., supposed to be the same as *Anchylopera fragariæ* W. and R., though Prof. Fernald finds that we have the European *comptana* here and believes that *fragariæ* is a good species; *Tmetocera ocellana* (Fabr.), and the well-known *Carpocapsa pomonella* (Linn.). As introduced species there should be added to the list *Dapsilia rutilana* Hübn., treated of in our Report to the Department of Agriculture for 1878, and probably *Eulia ministrana* which we have received from the late Dr. LeBaron of Illinois, and also *Spilonota roborana* Schiff. (*cydnosana* Fabr.) which we have reason to believe is the same as *Hedya Scudderiana* Clem. = *Euryptichia saligneana* Clem. = *Pœdisca affusana* Zell.

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[1] Descriptions of some new Tortricidæ, Trans. Ac. Sc. St. Louis, IV, p. 321.

In regard to the conventional specific ending to the names of Tortricids, we notice that Lord Walsingham follows Zeller in making it conform to the gender of the generic name; thus we have *Lophoderus gloveranus* and *Exartema sericoranum.*

Lord Walsingham's paper on Tineidæ[1] and his "Pterophoridæ of California and Oregon,"[2] have been reviewed by Mr. V. T. Chambers and Mr. Charles Fish in the November number of our contemporary, the *Canadian Entomologist.* In the latter monograph appears the first general treatment of any portion of the North American species and the success of Lord Walsingham's collecting in California and Oregon is shown in the discovery of twenty-seven new species of this restricted group of moths, making the whole number known from Northwest America, thirty-eight. Some interesting introductory remarks are given in regard to the geographical distribution and variation of the species; and a new genus, *Trichoptilus,* is proposed for "probably the smallest known species of Pterophoridæ," differing from all other genera in the front wings being cleft to the middle and in the tuft of scales on the third lobe of the hind wings being situated only just beyond the middle.—*C. V. R.*

MOTHS MISTAKEN FOR ALETIA.—Mr. F. A. Walthall, of Newburn, Ala., sends us a number of moths, which he captured during the latter half of February flying in immense numbers at evening time around buildings, and which he supposes to be the cotton-moth. They are, however, all *Platyhypena scabra* (Fabr.), which has been so often recorded by us as being mistaken for Aletia. This Platyhypena is by far the most common winter moth in the South, and while it is a difficult task to find during the cold spells of a southern winter any other Noctuids which we know to hibernate as imago and which are seen flying about on warm evenings, this species can always be found, even during the coldest spell. A very slight shelter, such as the loose bark of dead trees, fence posts, etc., is sufficient to protect it from the cold, and it has been found alive in such places where other hibernating insects, *e.g.*, Carabidæ and Heteroptera were frozen stiff and dead.

Several other correspondents have lately sent moths from the South under the supposition that they were Aletia. Those from Mr. J. W. Burch, of Fayette, Miss., and from Mr. H. Hawkins, of

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[1] *On some new and little known species of Tineidæ.* By THOMAS, LORD WALSINGHAM. 8vo, pp. 17, 2 plates. From Proc. Zoöl. Soc., London, 1880.

[2] *Pterophoridæ of California and Oregon.* By THOMAS, LORD WALSINGHAM. 8vo, pp. 66, 3 plates. London, John Van Voorst, 1880.

Hawkinsville, Ala., are *Phoberia atomaris*, while those from Mr. J. S. Newman, Atlanta, Ala., are the Platyhypena above-mentioned.

SCALE INSECT ON RASPBERRY.—Mr. R. B. Fulton, of Oxford, Miss., sends us a raspberry cane covered with a scale insect, with the following remarks: "The insect has been ruinous to the black-cap raspberry in this vicinity for the last three or four years. Old raspberry plants have been dug up and thrown away to get rid of the pest. It first appeared (or was noticed) in one garden, and has spread to all in this vicinity. If it is a bark-louse, and if, as is stated by Harris, the female has no wings, how could the insect have spread so rapidly to six or eight gardens? I have not noticed it on the red or yellow raspberry. It multiplies so fast that it seems useless to try to kill it by any applications to the plant."

The whitish, flat, either broady-oval or round scales on the cane are, judging from the scales and eggs, those of the widespread Harris's bark-louse (*Diaspis harrisii* Walsh), which is known to infest various trees and shrubs. The mode of spreading of this and other scale insects, the females of which never acquire wings, is more rapid than is generally supposed. The young lice which hatch in the spring are very active during a few days, and can overrun a large garden in a very short time. They may easily be carried from one garden to another by the wind or by the aid of birds or flying insects. In most cases, however, the female scales are transported from one place to another on cuttings and nursery stock. The best way to counteract the ravages of this insect is to dig up and burn, in winter time, *all* infested plants. New plants should always be carefully examined and thoroughly cleansed before planting.

SPECIFIC VALUE OF APATURA ALICIA EDW.—Mr. W. H. Edwards gives, in the October number of *Psyche*, recently issued, a full account of the adolescent stages of this species and concludes that its specific value is confirmed thereby. Bearing in mind the variation which we know to occur in the larva of *Apatura celtis*, we are constrained to attach less importance to the slight differences which Mr. Edwards points out between it and the larva of *alicia* than he himself gives to them. The facts brought out, however, strengthen the claim of *alicia* to stand as a name characterizing a special form. Whether it be considered a good species or not is hardly worth discussing on account of the great latitude of opinion as to what constitutes a species.

ANTHROPOLOGY.[1]

ANTHROPOLOGY IN GERMANY.—Just as the Journal of the Anthropological Institute represents our science in England, and the Bulletins, Revue and Materiaux, exhibit the labors of anthropologists in France, so in Germany the cream of all contributions

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[1] Edited by Prof. OTIS T. MASON, Columbian College, Washington, D. C.